Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	
Delete, Delete, Delete	)	GN Docket No. 25-133
	)	
Promoting Spectrum Access for Wireless Microphone Operations	)	GN Docket No. 14-166
	)	
Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37	)	ET Docket No. 14-165
	)	
Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap	)	
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket No. 12-268

COMMENTS OF SENNHEISER ELECTRONIC CORPORATION

Sennheiser Electronic Corporation ("Sennheiser") provides the following comments on the Federal Communications Commission's ("FCC" or "Commission") Public Notice seeking comment on identifying FCC rules for the purpose of alleviating unnecessary regulatory burdens ("Public Notice").[1] As explained herein, Sennheiser recommends that the FCC remove or modify several of its rules and regulations in order to promote growth, innovation, and competition in the content creation and wireless microphone marketplaces.

[1] *In re: Delete, Delete, Delete*, GN Docket No. 25-133, Public Notice, DA 25-219 (rel. Mar. 12, 2025) ("Public Notice").

I. BACKGROUND

Sennheiser Electronic Corporation is part of Sennheiser Electronic GmbH & Co. KG, headquartered in Germany, which is a global leader in advanced microphone technology, RF-wireless and infrared sound transmission, headphone and speaker technology, and active noise cancellation. Sennheiser Electronic Corporation is the main U.S. office, located in Old Lyme, Connecticut.

The United States is the global leader in content creation with the best production crews supporting content development in the world. Wireless microphones are indispensable in modern content creation, including, but not limited to, electronic news gathering ("ENG"), which occurs in every area of the United States: rural, suburban, and urban. Content is a key component of the U.S. economy[2] and is a major source of cultural enrichment. Professional wireless microphones are unique in that they are fault-intolerant, real-time devices (i.e., must exhibit negligible latency) deployed in circumstances that do not permit a "second take." The FCC has noted that:

> Wireless microphones provide many important functions that serve the public interest. . . [t]hey play an essential role in enabling broadcasters and other video programming to serve consumers, including helping to cover breaking news and broadcasting live sports events . . . [and] significantly enhance event productions in a variety of settings (including theaters and music venues, film studios, conventions, corporate events, house of worship, and internet webcasts), often are integral to creating high quality content that consumers demand and value, and contribute substantially to our society.[3]

[2] Stephen E. Siwek, *Copyright Industries in the U.S. Economy: The 2018 Report* (Economists Incorporated 2018). Available at https://pmcdeadline2.files.wordpress.com/2018/12/copyright-industry-report-wm.pdf

[3] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd 6576, 6696-97, para. 300 (2014) ("Incentive Auction R&O").

However, as Sennheiser has explained previously, changes in the spectrum landscape over the last decade have left little spectrum for wireless microphone use.[4] Thus, content creators and wireless microphone operators have been forced to do more with less – working to innovate in order to handle the exponential increase in demand for content across the globe, in light of their decreased access to spectrum. To that end, there are a variety of actions that the FCC should take in connection with this proceeding that would reduce unnecessary regulatory burdens, bolster innovation, and provide the content creation industry in the United States with the tools necessary to produce first-class quality content in the most efficient manner possible. The FCC should use the opportunity set forth in this proceeding to modify and repeal several of its rules and regulations relating to wireless microphone operations in order to promote innovation and competition, ensure these critical tools have the resources they need to continue to operate, and promote United States global leadership.

The modifications should be as follows, the FCC should: (1) eliminate the 50 microphone threshold for a Part 74 license; (2) permit wireless microphone operation in Channel 37; (3) harmonize the power limits for wireless microphone operation in the duplex gap with the television bands power limit; (4) lift the 30 MHz limit for operation in the 1435-1525 MHz (AFTRCC) band; (5) remove the indoor limitation for licensed operators operating co-channel

[4] *See e.g.* Letter from Michael Lazarus, Counsel to Sennheiser, to Marlene H. Dortch, Secretary Federal Communications Commission, MB Docket No. 15-146, GN Docket No. 12-268 (filed Dec. 7, 2021). The FCC has noted that spectrum available for wireless microphones has decreased as a result of FCC actions that repurposed and repacked portions of the TV bands to provide more spectrum for mobile broadband services. *Amendment of Parts 15 and 74 of the Rules for Wireless Microphones in the TV Bands, 600 MHz Guard Band, 600 MHz Duplex Gap, and the 941.5-944 MHz, 944-952 MHz, 952.850-956.250 MHz, 956.45-959.85MHz, 1435-1525 MHz, 6875-6900 MHz and 7100-7125 MHz Bands,* Report and Order, FCC 24,22 (rel. Feb. 15, 2024). The FCC also terminated the Vacant Channel proceeding, which was originally intended, at least in part, to replace the loss of the two UHF channels set aside for exclusive wireless microphone use.

with television stations; (6) adopt a simplified Form 601 for wireless microphone use; and (7) exempt religious and educational entities from Part 90 fees.

II. THE FCC SHOULD ELIMINATE THE 50 MICROPHONE THRESHOLD FOR A PART 74 LICENSE

The FCC's rules currently limit professional wireless microphone licenses to venues and entities that "routinely use 50 or more" wireless microphones.[5] In 2017, the FCC released a Further Notice of Proposed Rulemaking, which sought comment on modifying the 50 microphone threshold, recognizing that "the 50 microphone threshold is unnecessarily restrictive as it excludes many entities that have the need for professional high-quality audio for their events/productions."[6] The FCC's conclusion remains true today. As Sennheiser has explained, a number of professional theaters and productions do not routinely use 50 or more wireless microphones, but need protection from interference in order to conduct their performances and comply with the Americans with Disabilities Act ("ADA").[7] Given the market, technological, and other regulatory changes in the wireless microphone sphere, the 50 microphone threshold is "affirmatively detrimental"[8] and should be removed to allow professional microphone operators to obtain interference protection and access bands that are only available to licensed operators.

The change in the spectrum landscape necessitates FCC action here to promote and advance competition. As explained above, wireless microphone users have fewer spectrum

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[5] 47 C.F.R. §§ 74.801, 74.832.

[6] *Promoting Spectrum Access for Wireless Microphone Operations, et al.*, GN Docket No. 14-166, *et al.*, Further Notice of Proposed Rulemaking, 32 FCC Rcd 6077, 6122-23, para. 84 (2017).

[7] *See, e.g.* Letter from Michael Lazarus, counsel to Sennheiser, to Marlene H. Dortch, Secretary Federal Communications Commission, ET Docket No. 21-115, GN Docket No. 14-166, ET Docket No. 14-165, GN Docket No. 12- 268, ET Docket No. 04-186, ET Docket No 20-36, at 3-4 (filed Jul. 15, 2022) ("July 2022 Ex Parte").

[8] Public Notice at 2.

resources than they have had in the past. This means that in many metropolitan areas, where many of these professional venues are located, there is only one, or sometimes no, vacant channel available for their use. While there is less spectrum available, the demand for wireless microphone operations has continued to grow and, with that growth, consumer expectations have continued to increase. The FCC's 50 microphone minimum threshold is making it increasingly difficult for these professional theaters and performances to meet consumer expectations and compete with larger venues, as they do not have the same spectrum access and interference protections for their performances as a licensed operator would have.

Moreover, the FCC's unnecessary limitation for holding a wireless microphone license makes it difficult for these venues to comply with other critical federal regulations and requirements, such as the ADA. Many of these venues are required to comply with the ADA by offering assistive listening systems to individuals with disabilities.[9] The front end of these systems are microphones. Interference to the microphones undermines the intent of the ADA and does not provide individuals with disabilities a comparable experience as other patrons.

Finally, these regulations are not necessary. The wireless microphones at these venues and performances are being operated by bona fide professional sound engineers who understand both the importance of clean spectrum to their performance, and that there is a limit on the amount of spectrum available for use. They are not going to cause interference to other users or abuse the licensing process. Accordingly, the FCC should remove the 50-microphone limit and allow all professional venues and performances to obtain a Part 74 license for wireless microphones.

[9] July 2022 Ex Parte at 3-4.

III. THE FCC SHOULD PERMIT WIRELESS MICROPHONE OPERATION IN CHANNEL 37

Currently, 608-614 MHz ("Channel 37") is reserved for wireless medical telemetry services ("WMTS") and radio astronomy services, with white space devices ("WSDs") being able to potentially operate in the channel on a secondary, unlicensed, non-interference basis.[10] In order to help solve the spectrum crunch that the content creation industry and wireless microphone operators are experiencing, the FCC should permit licensed and unlicensed wireless microphone operations in Channel 37.

Allowing wireless microphone operations in Channel 37 will promote innovation and competition by ensuring that wireless microphone operators have additional, nationwide spectrum that they can rely on to meet their spectrum needs.[11] Moreover, leaving wireless microphones out of Channel 37 is unnecessary due to significant market and technological changes.[12] These advances in wireless microphone technology are sufficient to allow for co-channel sharing between existing users and wireless microphone users; this innovation in the market reduces the risk to other users in the band. Indeed, new wireless microphone technologies are capable of including innovative solutions such as spectrum sensing technologies and the implementation of electronic keys that limit their use to designated areas. This reduces the risk to other users of the same spectrum. Accordingly, the FCC should permit wireless microphone operations in Channel 37.

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[10] *Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap, et al.*, ET Docket No. 14-165, *et al*. Report and Order, 30 FCC Rcd 9551, 9631, paras. 193-194 (2015) ("WSD Order").

[11] Public Notice at 1 ("unnecessary rules may stand in the way of deployment, expansion, competition, and technological innovation . . .").

[12] *Id.* at 3.

IV. THE FCC SHOULD HARMONIZE THE WIRELESS MICROPHONE POWER LIMITS FOR THE DUPLEX GAP WITH THE TV BANDS' POWER LIMIT

Wireless microphone operations in the 600 MHz duplex gap are limited to 20 mW EIRP.[13] The FCC should raise this arbitrary limit to at least 50 mW, which is the current power limit for unlicensed operation in the broadcast television bands. The current power limitation is drastically limiting use of the band, and experience with operations in the band has demonstrated it is not necessary, creates unintended burdens, and leads to frequent waivers.[14]

This restricted power limit is preventing more intensive and spectrally efficient uses of the band. For example, Wireless Multichannel Audio System ("WMAS") devices, which are more spectrally efficient than traditional narrowband wireless microphones, typically operate utilizing 50 mW of conductive power. Increasing the power limit would promote innovation and competition by enabling wireless microphone operators to deploy more spectrally efficient solutions, such as WMAS, in the duplex gap and otherwise make more intensive use of the band.

Moreover, experience demonstrates that such a low power limit is not necessary. The FCC repeatedly has granted applications for special temporary authority ("STA") that authorize wireless microphone operations in the duplex gap with up to 250 mW of power.[15] These STAs demonstrate that wireless microphone operations can be deployed in the band at higher power levels. Consistently filing repeated STAs in this manner is overly burdensome to wireless microphone operators. As the FCC notes in the Public Notice, repeated waivers of a rule "could

[13] 47 C.F.R. 15.236(d)(2).

[14] Public Notice at 3.

[15] *See, e.g.* Application of CP Communications, file no. 0201-EX-ST-2025, call sign WY9XZO; Application of CP Communications, file no. 0188-EX-ST-2025, call sign WY9XZN; Application of CP Communications, file no. 0331-EX-ST-2024, call sign WW9XXK.

suggest that the rule is unnecessary, inappropriate, or at least ill-suited to its purpose."[16] The FCC should thus amend its rules to allow wireless microphone operations up to 50 mW of power in the duplex gap.

V. THE FCC SHOULD LIFT THE 30 MHz LIMITATION FOR OPERATION IN THE AFTRCC BAND

The FCC's rules limit use of the Aerospace and Flight Test Radio Coordinating Committee ("AFTRCC") band (1435-1525 MHz band) to 30 MHz of spectrum.[17] This limitation should be removed as unnecessary. Users of this spectrum are required to coordinate with AFTRCC prior to operations in the band, which makes the bandwidth limit unnecessary[18] – if AFTRCC has an issue, it has the ability to decline the coordination request. Additionally, removing this limitation will allow for more innovation in the band – by allowing for greater use of contiguous spectrum - and remove unnecessary burdens on wireless microphone operators seeking to utilize this spectrum.

VI. THE FCC SHOULD REMOVE THE INDOOR LIMITATION FOR LICENSED OPERATORS OPERATING CO-CHANNEL WITH TV STATIONS

The FCC should modify its rules to allow indoor, co-channel wireless microphone operations within the protected contour of a co-channel television station without prior coordination of the station.[19] Outdoor, co-channel usage is already allowed, and the indoor prohibition is no longer necessary given the ongoing industry transition to the ATSC 3.0 standard – a significant technological change.[20] The fact is, this rule was adopted to protect

[16] Public Notice at 3.

[17] 47 C.F.R. § 74.803(d)(3).

[18] Public Notice at 3.

[19] 47 C.F.R. § 74.802(b)(2)(ii).

[20] Public Notice at 3.

stations operating on the ATSC 1.0 standard from interference. The ATSC 3.0 standard, however, is much more tolerant of wireless microphone operations. In addition, coordination with co-channel TV stations is extremely burdensome to wireless microphone operators. Thus, due to marketplace and technological changes, the FCC should eliminate this prohibition as it is not necessary.

VII. THE FCC SHOULD ADOPT A SIMPLIFIED FORM 601 FOR WIRELESS MICROPHONE OPERATORS

Sennheiser has previously noted its support for simplification of FCC Form 601 for wireless microphone users.[21] The FCC's Form 601 is lengthy and requires unnecessary information from wireless microphone operators, which creates unintended burdens for such applicants. The FCC should adopt a simplified Form 601 WM EZ that could be utilized for wireless microphone operators that contains all the information the FCC requires, but is significantly easier for the applicant – which may not be as familiar with FCC forms and procedures - to complete and understand, reducing the burdens for such applicants.[22] Sennheiser's proposed FCC Form 601 WM EZ was filed with the Commission in August 2021, and is incorporated herein. Sennheiser would also support the amendment or simplification of the instructions for Form 601 to clarify and assist wireless microphone applicants in completing the form, in order to make them more user-friendly for wireless microphone users. Sennheiser would be happy to assist the Commission in clarifying the instructions for Form 601 that are

[21] Letter from Michael Lazarus, counsel to Sennheiser, to Marlene H. Dortch, Secretary Federal Communications Commission, ET Docket No. 21-115, GN Docket No. 14-166, ET Docket No. 14-165, GN Docket No. 12-268, MB Docket NO. 15-146 (filed Aug. 5, 2021) ("August 2021 Ex Parte").

[22] Public Notice at 3.

specific to wireless microphone users. All of these modifications would decrease burdens on wireless microphone operators and reduce unnecessary regulatory burdens.

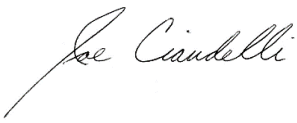
VIII. THE FCC SHOULD EXEMPT RELIGIOUS AND EDUCATIONAL ORGANIZATIONS FROM PART 90 FEES

The FCC currently only exempts governmental entities from the Part 90 application fee requirements.[23] There are many religious and educational institutions that utilize Part 90 licenses for which the FCC's application fee is unduly burdensome. This is exactly the type of burden that the FCC intends to eliminate pursuant to this proceeding. The FCC should alleviate this regulatory burden for those religious and educational institutions and grant them an exemption from the Part 90 application fee requirement.[24]

IX. CONCLUSION

Making the targeted changes to the FCC's rules outlined herein will foster growth and innovation in the content creation and wireless microphone marketplaces, and reduce regulatory burdens on content creators and wireless microphone operators.

Respectfully submitted,



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[23] 47 C.F.R. § 1.1116.

[24] Public Notice at 3.